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Helfgott & Karas PC
60th Floor
Empire State Building
New York, NY 10118

EXAMINER

MOORE, IAN N

ART UNIT

PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/620,119

Applicant(s)

AMBE, MICHIKO

Examiner

Ian N Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “**third storage**” (Claim 5, line 26) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 5, 6, and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites a server comprising a “third storage”. It is unclear what or where the third storage is. Neither specification nor the drawing clearly discloses the third storage.

Claim 6 and 7, please see above since these claims are depended on Claim 5.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1, 3, 5, 8, 9, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Tanimoto (U.S. Patent 6,075,776).

Regarding Claim 1, Tanimoto '776 discloses a network system comprising:

(a) a plurality of terminals which send and receive packets (Terminal TE 101-102, Fig. 1), each terminal belonging to one of a plurality of logical groups (Home Network HNW 200; Fig. 1);

(b) a plurality of switches (Routers 400, RAS 301, and RAC 601; Fig. 1) which interconnect said plurality of terminals by receiving and forwarding the packets originating from said terminals, each of said switches comprising:

first storage means for storing information that is used to identify logical group membership of the source terminal of a received packet (in router 401, a table with respect to the correspondence between each destination layer 3 address and relevant path information, that is, a table of routing data, is previously stored; see col. 4, line 33-37. Also, reference numeral 401 indicates a router, reference numerals 111 and 112 indicate TEs connected to and subordinated under router 401, and reference numeral 900 indicates an ARP (Address Resolution Protocol) cache managed by router 401; see col. 4, line 45-48),

query means for sending a query to request information about the logical group membership, when said first storage means has failed to provide sufficient information to

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identify the logical group membership of a particular source terminal (if layer 3 address is known while layer 2 address is unknown for a destination, the layer 2 address can be acquired using the ARP cash, this method being known as the "ARP". When layer 2 address of TE 111 is required, router 401 broadcasts an ARP request packet, in which the layer 3 address of TE 111 is included, to all connected and subordinated TEs; see col. 4, line 50-57), and

updating means for updating the information stored in said first storage means according to a response to the query sent by said query means (router 401 extracts the layer 2 address from the ARP response packet and stores it into ARP cache 900 to be used in later communication; see col. 4, line 59-62); and

(c) a server (IMS 700, Fig.1) which control said plurality of switches (Routers 400, RAS 301, and RAC 601) comprising:

second storage means for storing a list of identifiers of the terminals, in association with the logical groups to which the terminals belong (FIG. 2 shows initial information management table 50 for the VLAN, which is initially provided in IMS 700, and after this initialization, the VLAN is arranged with reference to this table. That is, this is a table for setting correspondence between MAC addresses of all TEs in the VLAN system and the IP address (i.e., the Internet address) of RAS 301; see col. 4, line 64-67),

searching means for searching said second storage means in response to the query from said requesting switch (for this authentication request from RAC 601, IMS 300 performs authentication and address resolution with respect to the home address, based on

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the sent MAC address of TE 101 and with reference to the above-explained initial information management table 50; see col. 5, line 39-44), and

transmission means for receiving a search result from said searching means and sending the search result to said requesting switch (IMS 700 returns a packet indicating that the TE has been authenticated and also returns the IP address of RAS 301 of HNW 200; see col. 5, line 50-55).

Regarding Claim 3, Tanimoto '776 discloses the server further comprises supposition means for suggesting a specific logical group to which said source terminal in question is supposed to belong, based on the identifier of the source terminal, when said searching means has failed to provide the requested information (for this authentication request from RAC 601, IMS 300 performs authentication and address resolution with respect to the home address, based on the sent MAC address of TE 101 and with reference to the above-explained initial information management table 50. That is, if the MAC address of TE 101 has been registered in the initial information management table 50, IMS 700 returns a packet indicating that the TE has been authenticated and also returns the IP address of RAS 301 of HNW 200; see col. 6, line 41-48).

Regarding Claim 5, Tanimoto '776 discloses the server further comprises third storage means for storing a list of the switches being available in the network system, in association with a list of the logical groups that can be assigned to the terminals belonging to each switch's local terminal group (VLAN management server connected to the global

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network, said server having an address for the global network, and in which a management table for indicating a correspondence relationship between each terminal and the remote access server and for indicating a location of each terminal under connection is provided, and the VLAN management server for managing packet transmission and the location of each terminal; see col. 1, line 66 to col.2, line 6. Moreover, when IMS 700 receives the request packet, the IMS updates data relating to TE 101 in location information management table 60 such that the registered data is changed from the IP address of RAC 601, to which TE 101 was moved and connected, to the IP address of RAS 301; see col. 7, line 1-3. FIG. 3 shows location information management table 60, provided in IMS 700 and RAS 301, for managing a correspondence relationship between the MAC address of each TE and the IP address (i.e., the Internet address) of the RAS or a RAC, the IP address functioning as locational information as for a network to which the TE is connected at the present time. According to this table, the IMS and RAS 301 can perform real-time management with respect to location of each TE; see col. 5, line 3-11) and

when the query is received from said requesting switch, said server consults said third storage means to find logical groups relevant to said requesting switch, and if the relevant logical groups do not include the logical group to which said source terminal in question is supposed to belong, prevents enrollment of said source terminal to the non included logical group (if the MAC address of TE 101 is not registered in initial information management table 50, EMS 700 returns a packet indicating that the TE was unauthenticated to RAC 601 (see step S10). According to this authentication "NG" packet, RAC 601 rejects the packet sent from TE 101 (see step S11); see col. 5, line 65-68).

Regarding Claim 8, Tanimoto '776 discloses a switch (Routers 400, RAS 301, and/or RAC 601; Fig. 1) for use in a network system where a plurality of terminals (Terminal TE 101-102, Fig. 1) are interconnected by a plurality of switches that receive and forward packets originating from the terminals (Terminal TE 101-102, Fig. 1) under the control of a server (IMS 700, Fig. 1), the switch comprising:

storage means for storing information that is used to identify logical group membership of the source terminal of a received packet (in router 401, a table with respect to the correspondence between each destination layer 3 address and relevant path information, that is, a table of routing data, is previously stored; see col. 4, line 33-37. Also, reference numeral 401 indicates a router, reference numerals 111 and 112 indicate TEs connected to and subordinated under router 401, and reference numeral 900 indicates an ARP (Address Resolution Protocol) cash managed by router 401; see col. 4, line 45-48);

query means for sending a query to the server to request information about the logical group membership, when said storage means has failed to provide sufficient information to identify the logical group membership of a particular source terminal (if layer 3 address is known while layer 2 address is unknown for a destination, the layer 2 address can be acquired using the ARP cash, this method being known as the "ARP". When layer 2 address of TE 111 is required, router 401 broadcasts an ARP request packet, in which the layer 3 address of TE 111 is included, to all connected and subordinated TEs; see col. 4, line 50-57), and

updating means for updating the information stored in said storage means according to a response to the query sent by said query means (router 401 extracts the layer 2 address from the ARP response packet and stores it into ARP cache 900 to be used in later communication; see col. 4, line 59-62).

Regarding Claim 9, Tanimoto '776 discloses a server (IMS 700, Fig.1) for use in a network system, which controls a plurality of switches (Routers 400, RAS 301, and RAC 601) that interconnect a plurality of terminals (Terminal TE 101-102, Fig. 1) by receiving and forwarding packets originating from the terminals, the server comprising:

storage means for storing a list of identifiers of the terminals, in association with logical groups to which the terminals belong (FIG. 2 shows initial information management table 50 for the VLAN, which is initially provided in IMS 700, and after this initialization, the VLAN is arranged with reference to this table. That is, this is a table for setting correspondence between MAC addresses of all TEs in the VLAN system and the IP address (i.e., the Internet address) of RAS 301; see col. 4, line 64-67);

searching means for searching said storage means in response to a query from one of the switches (for this authentication request from RAC 601, IMS 300 performs authentication and address resolution with respect to the home address, based on the sent MAC address of TE 101 and with reference to the above-explained initial information management table 50; see col. 5, line 39-44); and

transmission means for receiving a search result from said searching means and sending the search result to the switch that has sent the query (IMS 700 returns a packet

indicating that the TE has been authenticated and also returns the IP address of RAS 301 of HNW 200; see col. 5, line 50-55).

Regarding Claim 10, Tanimoto '776 discloses a computer-readable medium (IMS 700, Fig. 1), which stores a computer program being designed to run on a computer in order to cause the computer to function as a server comprising:

storage means for storing a list of identifiers of terminals, in association with logical groups to which the terminals belong (FIG. 2 shows initial information management table 50 for the VLAN, which is initially provided in IMS 700, and after this initialization, the VLAN is arranged with reference to this table. That is, this is a table for setting correspondence between MAC addresses of all TEs in the VLAN system and the IP address (i.e., the Internet address) of RAS 301; see col. 4, line 64-67);

searching means for searching said storage means in response to a query from one of the switches (for this authentication request from RAC 601, IMS 300 performs authentication and address resolution with respect to the home address, based on the sent MAC address of TE 101 and with reference to the above-explained initial information management table 50; see col. 5, line 39-44); and

transmission means for receiving a search result from said searching means and sending the search result to the switch that has sent the query (IMS 700 returns a packet indicating that the TE has been authenticated and also returns the IP address of RAS 301 of HNW 200; see col. 5, line 50-55).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanimoto '776 in view of Suzuki (U.S. Patent 6,496,484).

Regarding claim 2, Tanimoto '776 discloses transmission means sends the search result to said requesting switch (IMS 700 returns a packet indicating that the TE has been authenticated and also returns the IP address of RAS 301 of HNW 200; see col. 5, line 46-50).

Tanimoto '776 does not explicitly disclose sending the search result to other switches (see Suzuki'484 col. 7, line 18-24, at the routing server in response to the update notifying message sending an update request message to the routing nodes other than the routing node, the update request message including the new address information of the new host).

This limitation is taught by Suzuki'484. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Tanimoto '776 as taught by Suzuki'484 for the purpose of updating such an address learning table when a new host is connected to a LAN or an existing host is moved to another LAN; see

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Suzuki'484 col. 1, line 29-34. The motivation being that by sending updated information to the routing nodes, it can easily detect the unknown host.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanimoto '776 in view of Hart '003 (U.S. Patent 5,752,003).

Regarding claim 4, Tanimoto '776 discloses the server further comprises logical group producing means for producing a new logical group when said supposition means for said source terminal in question as described above in Claim 3.

Tanimoto '776 does not explicitly disclose supposition means has failed to suggest any specific logical group for said source terminal in question (see Hart '003 col. 3, line 58-66, if a packet is received from a source node which had not previously sent a packet using the identified logical network identifier, then a connection is set up between the virtual net server and that source node, adding the new node to the appropriate virtual net domain. Thus, the virtual net domain is defined as a group of nodes intended to receive multi-destination packets from members of a particular VNET determined by a layer three network protocol/network identifier).

This limitation is taught by Hart '003. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Tanimoto '776 as taught by Hart '003 for the purpose of managing network traffic, which is achieved based on automatically setting up a plurality of VNETs within a single large virtual LAN. Multicast/broadcast traffic is confined to the VNET of the source, without imposing constraints on layer two addressing within the virtual LAN; see Hart '003 col. 3, line 10-14.

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The motivation being that by automatic setting, it can enhance the network administrator's tasks.

5. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanimoto '776 in view of Holloway (U.S. Patent 5,905,859).

Regarding claim 6, Tanimoto '776 discloses the server further comprises notification as described above in Claim 1 and 5 above.

Tanimoto '776 does not explicitly disclose notifying an administrator if said requesting switch is not included in the list of the available switches (see Holloway '859 col. 7, line 54-59, if any discrepancies are detected, e.g., if a station is removed from the list or added to the list, then an SNMP trap is sent to the network management station. This notification alerts the network administrator that a potential security exposure exists in the campus network).

This limitation is taught by Holloway '859. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Tanimoto '776 as taught by Holloway '859 for the purpose of managing devices of a computer network that enables a comprehensive solution and that not only provides for detection of security intrusions, but also provides the proactive actions needed to stop the proliferation of security intrusions; see Holloway '859 col. 2, line 42-45. The motivation being that by alerting the system administrator, it can enhance the network security.

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6. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanimoto '776 in view of Dobbins (U.S. Patent 6,147,995).

Regarding claim 7, Tanimoto '776 discloses the server further comprises registration/storing of said requesting switch to said third storage means as described above in Claim 1 and 5 above.

Tanimoto '776 does not explicitly disclose adding an entry for said requesting switch when the list of the available switches does not include said requesting switch (see Dobbins '995 col. 8, line 14-25, a central connection server programs the point-to-multipoint connections between all of the SFPS switches, as there is no provision in each switch to do so (see M10 in FIG. 1). Thus, any time the connection server "discovers" a change in a switched topology, it has to reprogram the multicast channel between the switches. The server accesses a common directory for mapping end systems to VLAN-IDs. A management application may provide this on the front end, and in addition provide for changes to the mapping in the directory itself and in any switches that have been informed of the mapping. Any end system not defined with a VLAN would default to VLAN-1. Moreover, see Dobbins '995 col. 7, Line 17-24, as each end system is discovered by an access switch, it is registered with a common directory of end systems for the entire network, and the directory then returns a list of VLAN-IDs to the access switch with the "End System Discovery Message ACK." Alternatively, a management application may administratively assign the VLAN-IDs, and manage the end system and port tables in the switch).

This limitation is taught by Dobbins '995. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Tanimoto

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'776 as taught by Dobbins '995 for the purpose of for establishing restricted broadcast groups within a switching fabric, known as virtual LANs (VLANs). The VLANs provide a simple but robust mechanism for allowing broadcast and multicast packets to be "flooded" through the switching fabric and transmitted only to those users or ports defined for a particular VLAN; see Dobbins '995 col. 2, line 62-66. The motivation being that by storing switch information at the common table at the server, it can enhance VLAN network switching performance.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Olms can be reached on 703-305-4703. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Ian N Moore
Examiner
Art Unit 2661

INM
9/16/03



KENNETH VANDERPUYE
PRIMARY EXAMINER